Complete Summary

GUIDELINE TITLE

Cardiac rehabilitation.

BIBLIOGRAPHIC SOURCE(S)

New Zealand Guidelines Group (NZGG). Cardiac rehabilitation. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Aug. 163 p. [379 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Chronic or post-acute cardiovascular disease, primarily:

- acute coronary syndrome (acute myocardial infarction/unstable angina)
- post coronary artery bypass graft surgery
- post angioplasty

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Management
Rehabilitation
Risk Assessment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine
Nursing
Physical Medicine and Rehabilitation

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Hospitals
Nurses
Occupational Therapists
Physical Therapists
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Social Workers
Students

GUIDELINE OBJECTIVE(S)

- To provide a summary of the most up to date New Zealand and overseas evidence on cardiac rehabilitation
- To make recommendations based on the evidence, that will lead to best practice cardiac rehabilitation in New Zealand
- To inform patients with coronary heart disease and their advisers about the benefits of comprehensive cardiac rehabilitation

TARGET POPULATION

Patients in New Zealand with coronary heart disease and/or related conditions, including:

- acute coronary syndrome (acute myocardial infarction/unstable angina)
- coronary artery bypass surgery and angioplasty
- chronic stable angina
- surgery for valvular heart disease

INTERVENTIONS AND PRACTICES CONSIDERED

Phase I - Inpatient Rehabilitation

1. Early mobilisation of patient
2. Patient and family education regarding heart disease and risk factor modification
3. Arranging evaluation for cardiac rehabilitation programme following discharge

Phase II - Outpatient Rehabilitation

1. Psychosocial Management
    - Assessment of level of social support needed
    - Monitoring symptoms of depression and anxiety
    - Advice on return to vocational activity, driving and return to sexual activity
    - Referral to home or hospital based comprehensive cardiac rehabilitation programme
2. Smoking Cessation
    - Assessment of tobacco use
    - Strongly encouraging patient and family to stop smoking and avoid smoke
    - Facilitation of counselling, pharmacotherapy (such as nicotine replacement therapy and antidepressants) and cessation programmes as appropriate
3. Exercise Programmes
    - Assessment of exercise risk, preferably with exercise test to guide prescription
    - Exercise program of low to moderate intensity
4. Nutrition management
    - Patient education regarding cardioprotective dietary pattern
    - Advice on use of dietary supplements (e.g., vitamin E, fish or fish oil supplements, omega-3-polyunsaturated fats)
    - Advice on alcohol consumption
5. Weight management
    - Individually planned nutritionally balanced diet for overweight or obese patients
    - Encouragement of exercise and nutrition goals
6. Pharmacotherapy
    - Lipid lowering medication
        - Fasting lipid profile
        - Drug therapy (statin generally most appropriate; consider adding fibrate if low high-density lipoprotein [HDL] or high triglycerides)
    - Blood pressure control
        - Lifestyle measures
        - Addition of blood pressure medication individualised to patient characteristics
    - Antiplatelet agents
        - Aspirin indefinitely (if aspirin contraindicated, consider warfarin)
    - Beta blockers
        - Beta blocker therapy indefinitely unless contraindicated
    - Angiotensin-converting enzyme (ACE) inhibitors
        - ACE inhibitor therapy indefinitely in high-risk, post myocardial infarction patients (anterior myocardial infarction, previous myocardial infarction, left ventricular dysfunction or congestive heart failure)
        - Chronic therapy in other patients

Phase III - Long Term Maintenance

1. Monitoring outcomes and follow up as needed

MAJOR OUTCOMES CONSIDERED

- Clinical measures such as serum cholesterol levels, blood pressure, weight, body mass index (BMI), New York Heart Association (NYHA) classification
- Mortality and morbidity including reinfarction and rehospitalisation
- Cardiac rehabilitation programme performance indicators (participation rate, drop out rate)
- Patient outcome measures including:
    - Quality of life (Hospital Anxiety and Depression Scale [HADS] and similar instruments)
    - Satisfaction with cardiac rehabilitation programme

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Due to the vast quantity of cardiovascular literature and the availability of recently developed international cardiac rehabilitation guidelines listed below, a pragmatic approach was taken by the guideline team. The methodology of the following guidelines was appraised according to the Appraisal of Guidelines Research and Evaluation (AGREE) critical appraisal instrument:

- Best practice guidelines for cardiac rehabilitation and secondary prevention (1999) Victoria, Australia
- Cardiac Rehabilitation. Guidelines and audit standards. (United Kingdom)
- Cardiac Rehabilitation. Clinical Practice Guideline Number 17 (1995) U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, National Heart, Lung and Blood Institute
- Canadian guidelines for cardiac rehabilitation and cardiovascular disease prevention (1999)
- American College of Sports Medicine guidelines for exercise testing and prescription (2000)
- 1997 New South Wales Policy Standards for Cardiac Rehabilitation

The Victorian and US Agency for Health Care Policy and Research guidelines were assessed as being explicitly evidence-based and of high quality. These two guidelines were then used as the basis for the New Zealand Cardiac Rehabilitation guideline and a literature search from January 1995 until December 2000 was conducted.

A series of questions were developed for the literature search:

1. For people with established coronary artery disease, do comprehensive, multifactorial rehabilitation programmes compared with usual care, achieve benefits in terms of all-cause and total mortality, hospitalisation rates, quality of life and health care costs over a 5 year period?
2. What evidence is there for individual components of cardiac rehabilitation programmes; exercise, nutrition education, psychosocial education and interventions, risk factor education, drug and lifestyle interventions, in terms of benefits/harms and costs?
3. For specific population groups with coronary artery disease (the elderly, young, Mäori, Pacific peoples, other ethnic groups, rural/urban, those with congestive heart failure or other co-morbidities) what is the evidence for programme effectiveness (in terms of participation, consumer acceptability and ability to achieve lifestyle changes) for one mode of delivery compared to another?
4. Are there specific prognostic factors that will predict the likelihood of a cardiac event during cardiac rehabilitation?

Two independent literature searches were conducted from January 1995 to December 2000, to find publications not included in the previous guidelines. Databases used were Cochrane CD (including Cochrane Clinical Trials Register), Medline, Embase, CINAHL, Psychlit and Psychinfo. Reference lists of identified studies were also searched. Attempts were made to locate all relevant literature and conference abstracts. For therapy questions, evidence of effectiveness was sought preferentially from systematic reviews, meta-analyses or randomised controlled trials. Where no new evidence was available, large cohort studies or case-control studies were also included. For questions regarding prognosis, large cohort studies and systematic reviews of cohort studies were considered the preferred study design. Where evidence for some of the questions was lacking, other study designs, e.g., quasi-experimental, were also evaluated.

Approximately 4000 abstracts were retrieved. These were then evaluated to determine whether the full articles would be retrieved according to whether the individual articles fulfilled the original Patient, Exposures and Comparison, Outcomes and Time (PECOT) criteria (specifically the patient population, intervention and outcome). Non-English language publications were also retrieved as some of these had both original and translated text. Following this evaluation, around 400 abstracts were collated according to chapter headings. Literature acquisition and tracking was then coordinated by the Cochrane Menstrual Disorders and Subfertility Group (Auckland).

NUMBER OF SOURCE DOCUMENTS

Around 400 abstracts

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The evidence was ranked according to the Scottish Intercollegiate Guidelines Network (SIGN) grading system for recommendations in evidence-based guidelines.

Levels of Evidence

1++

High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias.

1+

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias.

1-

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias.

2++

High quality systematic reviews of case-control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal.

2+

Well conducted case-control or cohort studies with a low risk of confounding or bias, and a moderate probability that the relationship is causal.

2-

Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal.

3

Non-analytic studies, e.g., case reports, case series.

4

Expert opinion.

Note: Studies that were graded 1- or 2- were considered similar to level 3 or 4 evidence because of methodological flaws.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Evidence tables for major studies were completed to critically appraise study quality, validity, and applicability. Approximately 10% of all the studies were independently graded by other members of the guideline committee to check for discrepancies in the assignment of grading levels. There was a high degree of concordance.

Following assessment of the level of evidence for individual papers, recommendations were given a grade from A to D.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Sections of the guideline were written by separate author/s and edited by Professor Norman Sharpe and Dr. Diana North. Special consideration was given to:

- Appropriateness and acceptability for Mäori
- Appropriateness and acceptability for Pacific peoples
- Other socio-cultural/socio-economic factors in New Zealand.

The chapters and recommendations were evaluated by the whole committee and disagreements resolved by consensus.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendation

Note: This grading system departs from the Scottish Intercollegiate Guidelines Network (SIGN) system which was derived primarily for treatment guidelines and revises ranking according to therapy or prognosis.

Grade A

For therapy:

- At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population, OR
- A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population and demonstrating overall consistency of results.

For prognosis:

- At least one meta-analysis, systematic review, or large high quality cohort study rated as 2++ and directly applicable to the target population, OR
- A body of evidence consisting principally of studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results.

Grade B

For therapy:

- A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results, OR
- Extrapolated evidence from studies rated as 1++ or 1+.

For prognosis:

- A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results.

Grade C

For therapy:

- A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results, OR
- Extrapolated evidence from studies rated as 2++.

Grade D

- Evidence levels 3 or 4, OR

For therapy:

- Extrapolated evidence from studies rated as 2+, or expert opinion.

COST ANALYSIS

Cost-Utilisation Data/Funding

Cost-utilisation data is very limited. There is no available data on outcomes and costs such as re-hospitalisation rates, GP visits and other health professional services, medical/surgical treatment costs and laboratory costs in New Zealand for patients attending compared with not attending programmes.

The cost of providing a cardiac rehabilitation programme varies with the duration and frequency of sessions, uptake and throughput of participants, staff mix, monitoring technologies utilised and the cost of the facility. Currently in New Zealand cardiac rehabilitation is purchased through cardiac education and

management purchase units. The extent of funding is $80.45 per purchase unit, with a total national spending of $1.34 million with wide disparities existing nationally (see Figure 1 in the original guideline summary).

A review of the cost effectiveness literature suggests that investment in cardiac rehabilitation is warranted not only in terms of reduced mortality and improved quality of life, but also cost savings to the healthcare system. This evidence however, is derived from studies conducted in the United States, Sweden and the United Kingdom. A cost analysis of 16 programmes in England and Wales showed the average cost per patient to be £371. This figure was biased by the high cost of three programmes. The median cost was £233. Using data extrapolated from studies in other countries may be misleading. There is a need to collate New Zealand data in relation to cost effectiveness.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The document was sent for external peer review (refer to original guideline document for a listing of groups and individuals involved in external peer review). Comments received were considered by a subgroup of the guideline development team and the New Zealand Guidelines Group and adjustments incorporated.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the Levels of Evidence (1^{++} to 4) and Grades of Recommendation (A to D) are given at the end of the Major Recommendations field.

Physical Activity

- Exercise advice should be individualised and consider clinical characteristics, lifestyle, attitudes, culture and environment. (B)
- For sedentary people, at least 30 minutes of moderate intensity activity on most days of the week is recommended. (B)
- Physical activity for people with coronary heart disease should begin at low intensity and gradually increase over several weeks. (D)
- Short periods of physical activity are beneficial. (B)
- In people with coronary heart disease, vigorous exercise is generally not encouraged. (C)
- Where possible, people with coronary heart disease should be referred to a comprehensive cardiac rehabilitation programme for exercise training. (B)

Nutrition Management

- In all patients with cardiovascular disease, the adoption of a cardioprotective dietary pattern is recommended. This pattern includes large servings of fruit, vegetables and whole grains, low fat dairy products, small servings of

unsalted nuts and seeds regularly and fish or legumes frequently in place of fatty meat and full fat dairy products. Small lean meat servings can be part of this dietary pattern. (A)
- Intensive dietary advice, compliance checks and long term follow up, preferably from a dietitian, are recommended to facilitate the adoption and maintenance of this dietary pattern. (A)
- A small amount of alcohol may provide health benefits. The protective effect of alcohol is seen at doses as low as one standard drink every second day. (C)
- There is currently insufficient evidence to recommend nutrition supplements of antioxidant vitamins, minerals or trace elements for the treatment or prevention of cardiovascular disease. (A)
- Fish and fish oil supplements may reduce the risk of sudden cardiac death; however, it remains to be determined whether fish oil supplements are more beneficial than eating fish. (A)

Weight Management

- For overweight and obese patients with coronary heart disease, the combination of a reduced-energy diet and increased physical activity is recommended. (A)
- The initial goal of therapy should be to reduce the patient's weight by 10%. (A)
- An energy deficit is most readily achieved through choice of foods low in total fat content, particularly saturated fat. Further reductions in total energy intake can be achieved by reducing carbohydrate intake, especially highly sweetened foods or drinks such as sugar, confectionery, cakes, biscuits, soft drinks and chocolate. (A)
- Popular high protein weight loss diets are not recommended for long term weight loss because they restrict consumption of healthy foods and do not provide the variety of foods needed to meet nutritional needs. (D)

Smoking

- All patients with cardiovascular disease should be advised to quit smoking. They should be supported to stop smoking as a priority measure. (A)
- For smokers with coronary heart disease, medical advice, individual and group counselling, nicotine replacement therapy and some antidepressant medications improve success in quitting and are recommended. (A)
- The spouses, partners, whänau and family of patients with coronary heart disease should be strongly encouraged to stop smoking to avoid the risk of second-hand smoke to the patient. (D)

Psychosocial Aspects

- Psychosocial interventions (patient education, counselling and cognitive behavioural techniques) should be included in comprehensive cardiac rehabilitation programmes. (B)
- An assessment of the social support available to the patient is recommended for all patients with coronary heart disease. (C)
- Simple questions regarding the patient´s illness perception, coping skills and external support followed by a validated questionnaire such as the Hospital Anxiety and Depression Scale (HADS) questionnaire are recommended. (D)

- The involvement of spouses, partners, whänau and family should be encouraged in all phases of comprehensive cardiac rehabilitation. (C)
- All patients with coronary heart disease who demonstrate a high level of anxiety or depression should be referred to a trained practitioner for assessment and treatment of their anxiety and depression. (B)
- Comprehensive cardiac rehabilitation programmes should include vocational guidance to facilitate an appropriate and realistic return to work. (B)
- For those who see work as a potential barrier to participation in an outpatient based programme, options such as home based cardiac rehabilitation should be considered. (D)
- Comprehensive cardiac rehabilitation programmes should include discussion of sexual activity in an open, frank and sensitive manner. (D)

Pharmacotherapy

- In all patients with coronary heart disease pharmacotherapy with aspirin, a betablocker, an angiotensin-converting enzyme (ACE) inhibitor and a statin should be considered unless contraindicated, regardless of initial levels. (A)

Case Management

- Comprehensive cardiac rehabilitation should embrace a case management approach. (A)
- Hospital based cardiac rehabilitation must be comprehensive and should be individualised to meet the needs of each patient. (D)

Patient Identification

- Comprehensive cardiac rehabilitation should be considered in all patients after myocardial infarction, coronary artery bypass surgery and angioplasty. (D)
- All patients with coronary heart disease should receive a personal written invitation to attend a cardiac rehabilitation programme. (D)
- A cardiac rehabilitation co-ordinator should have overall responsibility for liaison with patients, their health practitioners and other members of the team. The coordinator should implement strategies to minimise missed referrals. (D)

Programme Format

- All patients following a coronary event should receive a recommendation and referral for rehabilitation from a clinician. (D)
- Prior to discharge, all eligible patients should receive a written discharge plan. (D)
- Prior to commencing Phase II cardiac rehabilitation, all patients should be assessed and a programme developed that meets their individual needs and sets realistic goals. (D)
- The programme co-ordinator should communicate in writing to the patient´s general practitioner and specialist advising details of enrolment, non-attendance or discharge from the programme. (D)
- All patients should receive written information regarding their nearest cardiac club. (D)

Information Needs

- The educational component of a comprehensive cardiac rehabilitation programme should be individually tailored to the specific circumstances, readiness to change, cultural background and socio-economic circumstances of the patient. (B)
- Varied methods of providing patients with information during their hospital stay need to be considered to optimise patient learning and recovery. (B)

Settings for Cardiac Rehabilitation

- Hospital based cardiac rehabilitation must be comprehensive and should be individualised to meet the needs of each patient. (D)
- Cardiac rehabilitation programmes should be offered within the primary care setting for which workforce development is required. (B)
- Home based cardiac rehabilitation is recommended for patients who are either unable to attend or unwilling to use a hospital based service. (D)

The Multidisciplinary Team

- A range of knowledge and skills are recommended for a comprehensive cardiac rehabilitation service. The disciplines of medicine, cardiology, dietetics, nursing, exercise physiology, occupational therapy, physiotherapy, psychology and social work all contribute to ensuring a comprehensive service. The model chosen locally will vary but all disciplines included need to be committed to a coordinated and collaborative approach. (D)

Specific Populations

- Women's needs should be addressed in comprehensive cardiac rehabilitation programmes. (D)
- All patients should be referred to comprehensive cardiac rehabilitation irrespective of age. (D)
- Disadvantaged patients may need extra support to attend and complete programmes. (D)
- Rural patients need options for rehabilitation at home or within a primary care setting. (D)
- Patients with diabetes warrant priority for rehabilitation. (D)
- Spouse, partner, whänau and family should be offered access to an appropriate support group and be involved in all stages of the rehabilitation process. (D)

Mäori Perspectives

- The development of Mäori provider cardiac rehabilitation programmes is recommended. (D)
- Mainstream cardiac rehabilitation programmes must be reoriented to meet the needs of Mäori. (D)
- It is necessary that Mäori have input into the policy and decision making processes of cardiac rehabilitation services.(D)

Pacific Perspectives

- Current cardiac rehabilitation programmes should be redefined to meet the needs of Pacific peoples. (D)
- Cardiac rehabilitation services serving Pacific people should consider the importance of the Pacific family unit, spiritual needs and socio-economic status. (D)

Audit, Programme Evaluation and Patient Satisfaction

- Audit of programme performance indicators is necessary to monitor service provision and quality of care. Audit should take place every six months. (D)
- The collection and audit of ethnicity data is recommended to monitor services for equitable access and delivery of programmes. (D)
- All comprehensive cardiac rehabilitation programmes should monitor and evaluate data relevant to their locality, the population served and the stakeholders of the service. (D)
- All comprehensive cardiac rehabilitation programmes should ascertain the views of the consumers to assist the development of a quality service. (D)

Definitions

Grades of Recommendation

Note: This grading system departs from the Scottish Intercollegiate Guidelines Network (SIGN) system which was derived primarily for treatment guidelines and revises ranking according to therapy or prognosis.

Grade A

For therapy:

- At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population OR
- A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population and demonstrating overall consistency of results.

For prognosis:

- At least one meta-analysis, systematic review, or large high quality cohort study rated as 2++ and directly applicable to the target population, OR
- A body of evidence consisting principally of studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results.

Grade B

For therapy:

- A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results, OR
- Extrapolated evidence from studies rated as 1++ or 1+.

For prognosis:

- A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results.

Grade C

For therapy:

- A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results, OR
- Extrapolated evidence from studies rated as 2++.

Grade D

- Evidence levels 3 or 4, OR

For therapy:

- Extrapolated evidence from studies rated as 2+, or expert opinion

Levels of Evidence

The evidence was ranked according to the Scottish Intercollegiate Guidelines Network (SIGN) grading system for recommendations in evidence-based guidelines.

1++

High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias.

1+

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias.

1-

Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias.

2++

High quality systematic reviews of case-control or cohort studies with a very low risk of confounding or bias, and a high probability that the relationship is causal.

2+

Well conducted case-control or cohort studies with a low risk of confounding or bias, and a moderate probability that the relationship is causal.

2-

Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal.

3

Non-analytic studies, e.g., case reports, case series.

4

Expert opinion.

Note: Studies that were graded 1- or 2- were considered similar to level 3 or 4 evidence because of methodological flaws.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

These two guidelines were used as the basis for the New Zealand Cardiac Rehabilitation guideline:

- Best practice guidelines for cardiac rehabilitation and secondary prevention (1999) Victoria, Australia
- Cardiac Rehabilitation. Clinical Practice Guideline Number 17 (1995) U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, National Heart, Lung and Blood Institute

The Victorian and US Agency for Health Care Policy and Research guidelines were assessed as being explicitly evidence-based and of high quality.

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations" field).

For therapy questions, evidence of effectiveness was sought preferentially from systematic reviews, meta-analyses or randomised controlled trials. Where no new evidence was available, large cohort studies or case-control studies were also included. For questions regarding prognosis, large cohort studies and systematic reviews of cohort studies were considered the preferred study design. Where

evidence was lacking, other study designs e.g., quasi-experimental were also evaluated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Comprehensive cardiac rehabilitation programmes have been shown to reduce mortality from coronary heart disease, re-infarction rates and hospital admissions and improve quality of life for the patient and their family.

Subgroups Most Likely to Benefit:

In New Zealand, morbidity and mortality associated with cardiovascular disease is higher for Mäori and Pacific peoples. Cardiac rehabilitation can significantly reduce the effects of cardiovascular disease for these groups.

POTENTIAL HARMS

Lifestyle Interventions

Risks of Exercise

Vigorous exercise may trigger myocardial infarction or sudden death but regular exercise protects against this. Case crossover studies suggest the risk of myocardial infarction is on average six times higher during and for one hour after vigorous exercise. This relative increase in risk is much greater in sedentary individuals and less for those who exercise regularly. The risk of an acute cardiac event increases by up to 100-fold during vigorous exercise in individuals with underlying coronary artery disease. Similar studies also suggest the risk of sudden death is also higher during vigorous exercise especially for the normally sedentary. However, clinical trials of exercise based cardiac rehabilitation suggest an overall benefit from regular exercise in low to moderate risk patients after myocardial infarction, implying the increase in risk during and after vigorous exercise is likely to be balanced by a lower, long-term cardiovascular risk with regular moderate exercise.

Cardiovascular risk is higher in persons with impaired left ventricular function, severe coronary artery disease with inducible myocardial ischaemia, recent myocardial infarction and in individuals with significant ventricular arrhythmia. Vigorous exercise is not recommended in these individuals although reliable evidence on the balance of risks and benefits is limited. The risks of exercise may be reduced by assessing risk prior to exercise training, by recommending low to moderate intensity activity, and for individuals at moderate or higher risk, by exercising initially in a formal cardiac rehabilitation programme.

Pharmacotherapy

Standard pharmacotherapy for cardiovascular disease includes the use of antiplatelet agents, beta blockers, angiotensin-converting enzyme (ACE) inhibitors

and lipid lowering agents. All medications will require consideration of side effects and contraindications.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Contraindications to nicotine replacement therapy may include hypersensitivity to nicotine, recent myocardial infarction, unstable or progressive angina, Prinzmetal's variant angina, and severe cardiac arrhythmias.
- Sildenafil (Viagra) use is contraindicated for patients receiving any form of nitrate therapy.
- The presence of exercise induced high grade ventricular ectopy is usually a contraindication to vigorous exercise.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Clinical guidelines are produced to help health professionals and consumers make decisions about health care in specific clinical circumstances. Research has shown that if properly developed, communicated and implemented, guidelines can improve care. While guidelines represent a statement of best practice based on the latest available evidence (at the time of publishing), they are not intended to replace the health professional´s judgment in each individual case.
- The focus of this guideline is limited to comprehensive cardiac rehabilitation. It does not seek to review the evidence associated with cardiac heart disease or secondary prevention medications. Similarly, a full guideline that includes all medical and surgical secondary prevention interventions is beyond the scope of this document.
- Specific subgroups of patients such as those following heart transplantation, or with implantable defibrillators or permanent pacemakers, and children and adults with congenital heart disease may require rehabilitation but these topics are beyond the scope of this guideline.
- This guideline should be considered alongside several others from amongst a range of cardiovascular guidelines recently published or currently in development. Of particular relevance are those which relate to specific risk factor interventions and pharmacotherapy in more detail.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The guideline development team recommends the following multi-faceted strategies be adopted to disseminate the guideline and encourage its implementation throughout New Zealand.

Dissemination of the Guideline

The guideline should be disseminated as widely as possible to the following groups:

- General practitioners
- Independent practitioner associations (IPAs) and primary health organisations (PHOs)
- Primary health care nurses
- Cardiac rehabilitation nurses
- Cardiac Society members
- Disease state management nurses
- Exercise physiologists
- Dietitians
- Cardiac rehabilitation clubs
- Medical and nursing colleges

Provision of Consumer Information

Mäori, Pacific and English resources will be published to raise the awareness of people experiencing a cardiac event of the benefit of cardiac rehabilitation, what it involves and how to access the service. The information will also contain advice on appropriate resources that can also assist the person in their recovery.

Liaison with District Health Boards (DHBs) and other Rehabilitation Service Providers

It is recommended that a number of District Health Boards (DHBs) be invited to trial comprehensive cardiac rehabilitation programmes based in the community and the hospital, and to design programmes specifically to meet the needs of Mäori and Pacific peoples. A number of the guideline development team members are willing to provide advice and assistance on how these could be achieved. It is recommended that these trials should be formally evaluated to assess consumer satisfaction, improved health outcomes and cost effectiveness.

Liaison with the Ministry of Health

It is proposed that the Ministry of Health review the service specifications for DHBs cardiac rehabilitation programmes to include home based care programmes, the collection of ethnicity data and the ongoing review and evaluation of the programmes.

Events and Training

To assist the uptake of the guideline in primary care, it is recommended that:

- The guideline is launched at the Cardiac Society Conference
- A continuing medical education (CME) pack be developed for IPA facilitators and other educators
- The guideline development team members around the country make presentations at relevant conferences and CME meetings
- Training programmes be developed specifically for cardiac rehabilitation nurses

- Te Hotu Manawa Mäori develop training resources based on the guidelines for Mäori practitioners
- Pacific Heart Beat develops training resources based on the guidelines for Pacific practitioners.

Audit Programme Evaluation and Patient Satisfaction

Quality

The consumers, service providers, purchasers and funders of cardiac rehabilitation services all have a particular interest in the quality of cardiac rehabilitation care. This puts a responsibility on service providers for the collection of data relevant to the different perspectives. Often different levels of data will be required for different purposes:

- The minimum data required for programme evaluation that a service provider should collect (obtained routinely and by patient satisfaction questionnaire)
- Additional data for periodic audit (by internal or external agencies)
- Suggested performance indicators that a provider could report against or that District Health Boards could include in service specifications.

Programme evaluation

Programme evaluation is a way of monitoring and improving the quality of care. The information gathered should reflect the values of the cardiac rehabilitation programme and meet the needs of all the stakeholders, patients included. Information collected regarding the programme outcomes should be presented at a level the different target stakeholders understand.

For cardiac rehabilitation programmes the ability to measure and classify characteristics of patients and to monitor outcomes has become increasingly important. It is critical, not optional, for cardiac rehabilitation programmes to document outcomes in order to quantify both the effectiveness and efficiency of rehabilitation care.

Programme evaluation criteria relate to the phases of cardiac rehabilitation. Some can be applied at three, six and twelve months to evaluate long-term effectiveness of the intervention. Analysed information should be used to improve performance in identified areas and celebrate the success of others. When deciding which outcomes to measure it is important to measure those that are important to the patient as well as the provider and purchaser. It is important to remember when auditing outcome data and comparing results with a similar time period problems may arise because of case mix.

Audit is a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. Audit evidence is comprised of statements of fact or other information, which are relevant to the audit criteria and verifiable. Audit evidence can be qualitative or quantitative. There are no randomised controlled trials of the efficacy of audit and whether it is a good use of resources. There are many

observational studies, both quantitative and qualitative that have sought to evaluate audit.

Audit is a strategy that assists in the enhancement of the quality of a service. Audit is not an endpoint but a precursor to aid improvement. Audit can evaluate:

- Whether changes in practice are actually happening
- Whether those changes in practice are actually effective.

The ultimate aim of audit is to improve the quality of patient care. Lord and Littlejohn state that good quality refers not only to clinical effectiveness but also to other factors such as equity and respect for patients´ autonomy. As well as seeking to improve patient care by bringing about direct changes in clinical practice, audit can produce beneficial changes through indirect effects on professional education and team development. Audit has benefits for the consumers, providers and purchasers of a service.

There needs to be effective facilitation of audit if the benefits are to be accrued. Johnston identified methods that enabled audit to take place. These included modern medical records systems, dedicated staff, protected time and structured programmes of shared dialogue between purchasers and providers.

McBurney recommended that each cardiac rehabilitation programme should, at a minimum, record the number of cardiac patients who are referred, as well as the proportion who enter and complete a rehabilitation programme, including the basic demographic information of age, gender and diagnosis.

Patient satisfaction and consumer input to the programme

Patients are increasingly involved in the evaluation of their care. There are no universally accepted means for measuring patient satisfaction. Measures of patient satisfaction have been developed primarily so that patients could furnish health care providers with feedback on the services provided to them. A patient´s satisfaction with a service may bear no relationship to the health professional´s concept of a quality service. This emphasises the importance of coupling patient satisfaction with outcome evaluation.

If using patient satisfaction surveys it is important to be aware of the percentage of:

- Patients given a patient satisfaction survey
- Spouses/partners given a satisfaction survey
- Spouses/partners completing a satisfaction survey
- Dropouts contacted and asked for feedback
- Patients completing a satisfaction survey

Refer to the original guideline document for the recommended data for audit as well as recommended performance indicators.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

New Zealand Guidelines Group (NZGG). Cardiac rehabilitation. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Aug. 163 p. [379 references]

ADAPTATION

The following guidelines were used as the basis for the New Zealand Cardiac Rehabilitation guideline:

- Best practice guidelines for cardiac rehabilitation and secondary prevention (1999) Victoria, Australia
- Cardiac Rehabilitation. Clinical Practice Guideline Number 17 (1995) U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, National Heart, Lung and Blood Institute

DATE RELEASED

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GUIDELINE DEVELOPER(S)

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New Zealand Guidelines Group - Private Nonprofit Organization

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The New Zealand Ministry of Health and the National Heart Foundation (NZ)

GUIDELINE COMMITTEE

Cardiac Rehabilitation Guideline Development Team

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Competing Interests

Professor Norman Sharpe has received funding or acted as consultant for the New Zealand or international offices of the following companies:

- Aventis
- Roche
- Merck Sharp & Dohme
- Astra Zeneca
- Wyeth Ayerst
- Eli Lilly

Dr. Diana North has acted as a consultant for Roche.

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- Wyeth
- Eli Lilly

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- Phamacia
- Bristol Myers Squibb
- Merck Sharp & Dohme

The other members of the guideline development team did not report any competing interests.

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Royal Australasian College of Physicians - Professional Association
Royal New Zealand College of General Practitioners - Medical Specialty Society
Te Hotu Manawa Maori

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the New Zealand Guidelines Group (NZGG) Web site.

Print copies: Available from the New Zealand Guidelines Group Inc., Level 30, Grand Plimmer Tower, 2-6 Gilmer Terrace, PO Box 10-665, Wellington, New Zealand; Tel: 64 4 471 4188; Fax: 64 4 471 4185; e-mail: info@nzgg.org.nz.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- New Zealand Guidelines Group (NZGG). Guideline summary and resource kit. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2002 Aug. 49 p.

Electronic copies: Available in Portable Document Format (PDF) from the New Zealand Guidelines Group (NZGG) Web site.

Print copies: Available from the New Zealand Guidelines Group Inc., Level 30, Grand Plimmer Tower, 2-6 Gilmer Terrace, PO Box 10-665, Wellington, New Zealand; Tel: 64 4 471 4188; Fax: 64 4 471 4185; e-mail: info@nzgg.org.nz.

PATIENT RESOURCES

None available

NGC STATUS

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